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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/839,594	04/23/2001	Chan Eon Park	401182	1498

23548 7590 03/31/2004

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EXAMINER	
NGUYEN, KHIEM D	

ART UNIT	PAPER NUMBER
2823	

DATE MAILED: 03/31/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/839,594	PARK ET AL.	
	Examiner	Art Unit	
	Khiem D Nguyen	2823	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 January 2004* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,8,9,13,14 and 17-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,8,9,13,14 and 17-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 April 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on January 7th, 2004 has been entered. A new rejection is made as set forth in this Office Action. Claims (1-3, 8, 9, 13, 14, and 17-19) are pending in the application.

Claim Objections

Claim 17 is objected to because of the following informalities: Claim 17 is depended on the cancelled claim 15. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1-3, 13-14, and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ritter et al. (U.S. Patent 5, 316, 699) in view of Bucha et al. (U.S. Pub. 2002/0028201) and Ullman et al. (U.S. Patent 6,103,537).

In re claim 1, 13, and 18, **Ritter** discloses a composite comprising: a layer of a dielectric material having a thickness, as a matrix of the composite (col. 1, lines 29-43),

wherein the matrix is selected from the group consisting of silica (Abstract); and a non-pherical superparamagnetic nano-particles having a maximum dimension in a range from 50 Angstroms (5 nm) (col. 3, lines 56-59) and dispersed throughout the matrix (Abstract), wherein larger iron particles are found with concomitantly larger matrix pore size. The control of matrix pore size is therefore a means to control the size of the iron particles (col. 4, lines 29-42), and the non-spherical supermagnetic nano-particles are selected from the group consisting of ferrite nitride (col. 3, lines 16-25).

There is no evidence indicating the relationship between the thickness of the dielectric material and the supermagnetic nano-particles are critical and it has been held that it is not inventive to discover the optimum or workable range of a result-effective variable within given prior art conditions by routine experimentation. See MPEP §2144.05. Note that the specification contains no disclosure of either the critical nature of the claimed dimensions of any unexpected results arising there from. Where patentability is aid to be based upon particular chosen dimensions or upon another variable recited in a claim, the Applicant must show that the chosen dimensions are critical. In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Ritter does not explicitly disclose wherein the matrix is selected from the group consisting of hydrosilsesquioxane polymide, pholymethyl methacrylate, and methyl silsesquioxane as recited in the currently amended claims 1, 13, and 18.

Bucha discloses a composite comprising a layer of dielectric material having a thickness, as a matrix of the composite, wherein the matrix is selected from the group consisting of polymethyl methacrylate (PMMA) (pages 2-3, paragraph [0020] and

[0021]) and paramagnetic nano-particles dispersed through out the matrix (page 3, paragraph [0022]). It would have been obvious to one of ordinary skill in the art of making semiconductor devices to combine the teaching of Ritter and Bucha to enable the matrix having material consisting of polymethyl methacrylate of Ritter to be formed and furthermore to eliminate specific substrate from a liquid or to present substances in a liquid (page 1, paragraph [0002]).

Ritter does not explicitly disclose wherein the non-spherical supermagnetic nano-particles are selected form the group consisting of chromium oxide, europium oxide, NiZn-ferrite, MnZn-ferrite, and Yttrium-iron garnet as recited in the currently amended claims 1, 13, and 18.

Ullman discloses a composite comprising a layer of dielectric material having a thickness, as a matrix of the composite, wherein the matrix is selected from the group consisting of polymeric and paramagnetic nano-particles dispersed through out the matrix (col. 15, lines 12-40), the non-spherical supermagnetic nano-paricles are selected from the group consisting of "paramagnetic or diamagnetic partiles-synthetic particles usually with relatively low magnetic susceptibility of at least about..... Exemplary of the magnetic component of the paramagnetic particle that renders the particle magnetic but not able to magnetize other materials are intrinsically paramagnetic materials such as iron, cobalt, nickel, lanthanides, and the like, either in the free metal form or in the form of a complex, salt, oxide or the like (col. 15, lines 12-20). Ullman provides evidence that the use of chromium oxide, europium oxide, NiZn-ferrite, MnZn-ferrite, and Yttrium-iron garnet as non-spherical supermagnetic nano-particles are well-known to one of ordinary

skill in the art of making semiconductor devices. It would have been obvious to one of ordinary skill in the art of making semiconductor devices to combine the teaching of Ritter, Bucha, and Ullman to enable the non-spherical supermagnetic nano-parciles of Ritter to be formed and furthermore to obtain synthesis particles of uniform dimension (col. 15, lines 6-11).

In re claims 2, 3, 14, and 19, **Ritter** discloses including spherical supermagnetic nano-particles in addition to the ellipsoidal supermagnetic nano-particles (col. 2, line 50 to col. 4, line 41). It is up to the practitioner having ordinary skill in the art to decide the shape of the non-spherical supermagnetic nano-particles and how he/she wants to apply it.

2. Claims 8-9 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ritter et al. (U.S. Patent 5, 316, 699) in view of Bucha et al. (U.S. Pub. 2002/0028201) and Ullman et al. (U.S. Patent 6,103,537) as applied to claims 1-3, 13-14, and 18-19 above, and further in view of Hemmi et al. (U.S. Patent 5,886,173).

In re claims 8-9, and 17, **Hemmi** discloses wherein the composite including diamagnetic nano-particles in addition to the superparamagnetic nano-particles and wherein the diamagnetic nano-particles include indium (col. 6, lines 35-47). It would have been obvious to one of ordinary skill in the art of making semiconductor devices to combine the teaching of Ritter, Bucha, Ullman, and Hemmi to enable the nano particles of Ritter to be formed and furthermore the composite being particularly useful for complexes used as magnetic resonance imaging (MRI) contrast agents (col. 6, lines 36-37).

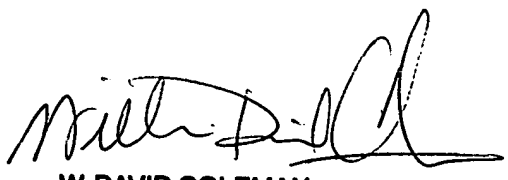
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khiem D Nguyen whose telephone number is (571) 272-1865. The examiner can normally be reached on Monday-Friday (8:00 AM - 5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on (571) 272-1855. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3432 for regular communications and (703) 305-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

K.N.
March 25, 2004



W. DAVID COLEMAN
PRIMARY EXAMINER